

Amendments to the claims:

This listing of claims will replace all prior versions and listings of claims in this application.

Claims 1-22 (Canceled).

Claim 23. (Previously presented) An apparatus for simultaneously monitoring an array of reaction sites for light indicating that a reaction is taking place at a particular site, comprising:

a sample receptacle for receiving a plurality of liquid samples at said array of reaction sites, said sample receptacle comprising an array of reaction sites and masking means between said reaction sites within said array;

a dispenser arranged for dispensing at least one reagent into said samples on said sample receptacle;

a single optically sensitive transducer arranged so that in use the light emitted from a particular plurality of samples at said array of reaction sites will impinge upon corresponding predetermined regions of said optically sensitive transducer;

a light intensity level determination device in connection with said optically sensitive transducer for simultaneously determining the level of light intensity impinging upon each of said predetermined regions; and

a recorder in connection with said light intensity level determination device for recording said light intensity level and the time of detection thereof for each of said liquid samples.

Claim 24. (Previously Presented) An apparatus as claimed in Claim 23, wherein said sample receptacle for receiving a plurality of liquid samples comprises a plate.

Claims 25, 26 (Canceled)

Claim 27. (Previously Presented) An apparatus as claimed in Claim 23 arranged to monitor the reaction sites from underneath.

Claim 28. (Currently Amended) An apparatus ~~as claimed in Claim 23~~, for simultaneously monitoring an array of reaction sites for light indicating that a reaction is taking place at a particular site, comprising:

a sample receptacle for receiving a plurality of liquid samples at said array of reaction sites, said sample receptacle comprising an array of reaction sites and masking means between said reaction sites within said array;

a dispenser arranged for dispensing at least one reagent into said samples on said sample receptacle;

a single optically sensitive transducer arranged so that in use the light emitted from a particular plurality of samples at said array of reaction sites will impinge upon corresponding predetermined regions of said optically sensitive transducer;

a light intensity level determination device in connection with said optically sensitive transducer for simultaneously determining the level of light intensity impinging upon each of said predetermined regions; and

a recorder in connection with said light intensity level determination device for recording said light intensity level and the time of detection thereof for each of said liquid samples; and further

comprising an array of lenses between, or arranged in use between, said reaction sites and the optically sensitive transducer.

Claim 29. (Currently Amended) An apparatus ~~as claimed in Claim 28~~, for simultaneously monitoring an array of reaction sites for light indicating that a reaction is taking place at a particular site, comprising:

a sample receptacle for receiving a plurality of liquid samples at said array of reaction sites, said sample receptacle comprising an array of reaction sites and masking means between said reaction sites within said array;

a dispenser arranged for dispensing at least one reagent into said samples on said sample receptacle;

a single optically sensitive transducer arranged so that in use the light emitted from a particular plurality of samples at said array of reaction sites will impinge upon corresponding predetermined regions of said optically sensitive transducer;

a light intensity level determination device in connection with said optically sensitive transducer for simultaneously determining the level of light intensity impinging upon each of said predetermined regions; and

a recorder in connection with said light intensity level determination device for recording said light intensity level and the time of detection thereof for each of said liquid samples;

wherein the lenses of said array are spaced by a smaller amount than the spacing of the corresponding reaction sites.

Claim 30. (Previously Presented) An apparatus as claimed in Claim 23, wherein the optically sensitive transducer comprises a charge-coupled device.

Claim 31. (Currently Amended) An apparatus as claimed in Claim 30, for simultaneously monitoring an array of reaction sites for light indicating that a reaction is taking place at a particular site, comprising:

a sample receptacle for receiving a plurality of liquid samples at said array of reaction sites, said sample receptacle comprising an array of reaction sites and masking means between said reaction sites within said array;

a dispenser arranged for dispensing at least one reagent into said samples on said sample receptacle;

a single optically sensitive transducer arranged so that in use the light emitted from a particular plurality of samples at said array of reaction sites will impinge upon corresponding predetermined regions of said optically sensitive transducer;

a light intensity level determination device in connection with said optically sensitive transducer for simultaneously determining the level of light intensity impinging upon each of said predetermined regions; and

a recorder in connection with said light intensity level determination device for recording said light intensity level and the time of detection thereof for each of said liquid samples;

wherein the optically sensitive transducer comprises a frame transfer charge-coupled device.

Claim 32. (Currently Amended) ~~An apparatus as claimed in Claim 23,~~ for simultaneously monitoring an array of reaction sites for light indicating that a reaction is taking place at a particular site, comprising:

a sample receptacle for receiving a plurality of liquid samples at said array of reaction sites, said sample receptacle comprising an array of reaction sites and masking means between said reaction sites within said array;

a dispenser arranged for dispensing at least one reagent into said samples on said sample receptacle;

a single optically sensitive transducer arranged so that in use the light emitted from a particular plurality of samples at said array of reaction sites will impinge upon corresponding predetermined regions of said optically sensitive transducer;

a light intensity level determination device in connection with said optically sensitive transducer for simultaneously determining the level of light intensity impinging upon each of said predetermined regions; and

a recorder in connection with said light intensity level determination device for recording said light intensity level and the time of detection thereof for each of said liquid samples; and further

comprising means to record a measure of the total light output from a given reaction site.

Claim 33. (Previously Presented) An apparatus as claimed in Claim 23, comprising means to convert the electrical output from said optically sensitive transducer into a digital signal.

Claim 34. (Currently Amended) ~~An apparatus as claimed in Claim 33,~~ for simultaneously monitoring an array of reaction sites for light indicating that a reaction is taking place at a particular site, comprising:

a sample receptacle for receiving a plurality of liquid samples at said array of reaction sites, said sample receptacle comprising an array of reaction sites and masking means between said reaction sites within said array;

a dispenser arranged for dispensing at least one reagent into said samples on said sample receptacle;

a single optically sensitive transducer arranged so that in use the light emitted from a particular plurality of samples at said array of reaction sites will impinge upon corresponding predetermined regions of said optically sensitive transducer;

a light intensity level determination device in connection with said optically sensitive transducer for simultaneously determining the level of light intensity impinging upon each of said predetermined regions; and

a recorder in connection with said light intensity level determination device for recording said light intensity level and the time of detection thereof for each of said liquid samples; and further comprising

conversion means to convert the electrical output from said optically active transducer into a digital signal,

wherein said conversion means converts the signals from a plurality of neighbouring pixels in a single block.

Claim 35. (Previously Presented) An apparatus as claimed in Claim 24, wherein said plate is in contact with heat regulating means.

Claim 36. (Cancelled).

Claim 37. (Currently Amended) ~~An apparatus as claimed in Claim 23,~~ for simultaneously monitoring an array of reaction sites for light indicating that a reaction is taking place at a particular site, comprising:

a sample receptacle for receiving a plurality of liquid samples at said array of reaction sites, said sample receptacle comprising an array of reaction sites and masking means between said reaction sites within said array;

a dispenser arranged for dispensing at least one reagent into said samples on said sample receptacle;

a single optically sensitive transducer arranged so that in use the light emitted from a particular plurality of samples at said array of reaction sites will impinge upon corresponding predetermined regions of said optically sensitive transducer;

a light intensity level determination device in connection with said optically sensitive transducer for simultaneously determining the level of light intensity impinging upon each of said predetermined regions; and

a recorder in connection with said light intensity level determination device for recording said light intensity level and the time of detection thereof for each of said liquid samples;

wherein said masking means are provided by channels in a block.

Claim 38. (Previously Presented) An apparatus as claimed in Claim 37, wherein said block comprises temperature regulating means.

Claim 39. (Previously Presented) An apparatus as claimed in Claim 37, wherein said channels flare outwardly towards the lower part thereof.

Claims 40-45 (Canceled)

Claim 46. (Previously Presented) An apparatus for identifying target bases in DNA sequences comprising:

a plate for receiving a plurality of liquid samples at respective reaction sites, said plate comprising a plurality of reaction sites and masking means between said reaction sites;

a dispenser arranged for dispensing at least one reagent into said samples on said plate;

a single optically sensitive transducer arranged so that in use light generated by the reaction of a plurality of particular liquid samples on said plate signifying the incorporation of a nucleotide will impinge upon corresponding predetermined regions of said optically sensitive transducer;

a light level determination device in connection with said optically sensitive transducer for simultaneously determining the level of light intensity impinging upon each of said predetermined regions; and

a recorder in connection with said light intensity level determination device for recording said light intensity level and the time of detection thereof.